ABSTRACT OF THE DISCLOSURE

A method and composition for improving the deposition plating rate of electroless copper. The invention presents embodiments comprising using elevated plating temperatures at the substrate - solution interface. This is coupled with suitably designed bath compositions, to preserve the electroless bath stability, required to improve the deposition plating rate of electroless copper. In one embodiment, the electroless bath composition comprises suitable individual Cu^{++} and Cu^{+} complexing agent(s), or a combination of complexing agents, surfactants, organic polymer additives, and the like, adapted and suitably optimized. For example, potential organic additive types or surfactants can be Polyoxes; Pluronics; Polyols; Polyglycols; Carbowaxes; Hydroxy ethyl cellulose (HEC), carboxy acetylenic, or fluocarbon acetylenic surfactants. The method and composition of the present invention enable the production of electroless copper coatings with improved adhesion to the substrate. This is achieved by selecting activation systems that result in copper initiation at moderate rates. An electroless copper composition assists, in that it too, ensures slow initial copper reduction at the substrate-solution interface.